

SCOPE OF CLAIMS

6. The photodiode array according to any one of Claims 1 to 5, wherein a high-impurity-concentration layer of the same conductivity type as the semiconductor substrate is formed on the incidence surface side of the light to be detected, in the semiconductor substrate.

5 7. A method of producing a photodiode array, the method comprising:

a step of preparing a semiconductor substrate comprised of a semiconductor of a first conductivity type;

10 a step of forming a plurality of impurity diffused layers of a second conductivity type on one surface side of the semiconductor substrate to form a plurality of photodiodes each comprised of the impurity diffused layer and the semiconductor substrate, in array; and

15 a step of providing a projection having a predetermined height, in a region not corresponding to regions where the photodiodes are formed, on another surface of the semiconductor substrate.

8. A method of producing a photodiode array, the method comprising:

a step of preparing a semiconductor substrate comprised of a semiconductor of a first conductivity type;

20 a step of forming a plurality of depressions in array on one surface side of the semiconductor substrate;

25 a step of forming a plurality of impurity diffused layers of a second conductivity type in bottom portions of the depressions to form a plurality of photodiodes each comprised of the impurity diffused layer and the semiconductor substrate, in array; and

a step of providing a projection having a predetermined height,

in a region not corresponding to regions where the photodiodes are formed, on another surface of the semiconductor substrate.

9. The method according to Claim 7 or 8, further comprising a step of forming a high-impurity-concentration layer of the first conductivity type on the other surface of the semiconductor substrate, prior to the step of providing the projection.

10. The method according to any one of Claims 7 to 9, further comprising a step of providing an impurity region of the first conductivity type between the impurity diffused layers adjacent to each other.

11. A radiation detector comprising:

the photodiode array as set forth in any one of Claims 1 to 6; and

15 a scintillator panel arranged opposite to the incidence surface of the light to be detected, in the photodiode array, and arranged to emit light with incidence of radiation.

12. A radiation detector comprising:

the photodiode array produced by the method as set forth in any one of Claims 7 to 10; and

20 a scintillator panel arranged opposite to the surface where the projection is provided in the photodiode array, and arranged to emit light with incidence of radiation.